CLAIMS

1. A current drive circuit for supplying a drive current to a driven object, including:

SCAN
a control line,

data
a signal line to which a signal current having a current level in accordance with information is supplied,

a receiving part for fetching the signal current from the signal line when the control line is selected,

a converting part for converting a current level of the fetched signal current to a voltage level and holding the same, and

a drive part for converting the held voltage signal to a current signal and outputting the drive current.

2. A drive current circuit as set forth in claim 1, wherein the converting part includes a conversion use transistor provided with a control terminal, a first terminal, and a second terminal and a capacitor connected to the control terminal.

3. A current drive circuit as set forth in claim 2, wherein

the converting part includes a switch use transistor inserted between the first terminal and

control terminal of the conversion use transistor;

the switch use transistor becomes conductive when converting the current level of the signal current to the voltage level and electrically connects the first terminal and the control terminal of the conversion use transistor to create the voltage level with reference to the second terminal at the gate; and

the switch use transistor is cut off when the capacitor holds the voltage level and separates the control terminal of the conversion use transistor and the capacitor connected to this from the first terminal.

4. A current drive circuit as set forth in claim 1, wherein

the receiving part includes a fetch use insulating gate type field effect transistor having a control terminal, a first terminal, and a second terminal, the first terminal connected to a first terminal of the conversion use transistor, the second terminal connected to the signal line, and the control terminal connected to the control line and

the converting part includes a switch use transistor inserted between the first terminal and control terminal of the conversion use transistor.

5. A current drive circuit as set forth in claim 4, wherein the control terminal of the fetch use

transistor and the control terminal of the switch use transistor are connected to different control lines.

6. A current drive circuit as set forth in claim 4, wherein a conductivity type of the conversion use transistor and a conductivity type of the fetch use transistor are different.

7. A current drive circuit as set forth in claim 2, wherein

the drive part includes a drive use transistor provided with a control terminal, a first terminal, and a second terminal and

the drive use transistor receives a voltage level held at the capacitor at its control terminal and passes a drive current having a current level in accordance with the same.

8. A current drive circuit as set forth in claim 7, wherein the control terminal of the conversion use transistor and the control terminal of the drive use transistor are directly connected to configure a current mirror circuit and the current level of the signal current and the current level of the drive current become proportional.

9. A current drive circuit as set forth in claim 7, wherein the drive use transistor is formed in the vicinity of the conversion use transistor and has a equal

threshold voltage as the conversion use transistor.

10. A current drive circuit as set forth in claim 7, wherein the size of the conversion use transistor is set larger than the size of the drive use transistor.

11. A current drive circuit as set forth in claim 9, wherein the drive use transistor operates in the saturated region and passes a drive current corresponding to the difference between the voltage level applied to the gate and the threshold voltage.

12. A current drive circuit as set forth in claim 9, wherein the drive use transistor operates in the linear region.

13. A current drive circuit as set forth in claim 10, wherein the drive use transistor operates in the linear region.

14. A current drive circuit as set forth in claim 2, wherein

the drive part shares the conversion use transistor together with the converting part in a time division manner and

the drive part separates the conversion use transistor from the receiving part and uses the same for driving after the conversion of the signal current is completed and passes the drive current in a state where the held voltage level is applied to the gate of the

conversion use transistor.

15. A current drive circuit as set forth in claim 14, wherein the drive part has a controlling means for cutting off an unnecessary current via the conversion use transistor at times other than the time of drive.

16. A current drive circuit as set forth in claim 15, wherein

the controlling means comprises a control use transistor provided with a control terminal, a first terminal, and a second terminal, the first terminal connected to the conversion use transistor, and the second terminal connected to the driven object and

said control use transistor becomes nonconductive and separates the conversion use transistor and the driven object in state when the driven object is not driven and switches to the conductive state when the driven object is driven.

17. A current drive circuit as set forth in claim 14, wherein the drive part has a potential fixing means for fixing the potential of a drain with reference to a source of the conversion use transistor so as to stabilize the current level of the drive current flowing through the conversion use transistor.

18. A current drive circuit as set forth in claim 1, wherein

the receiving part, converting part, and drive part configures a current circuit comprised of a plurality of transistors and

at least one transistor has a double-gate structure for suppressing current leakage in the current circuit.

19. A current drive circuit as set forth in claim 1, wherein a leak element is connected between said data line and a predetermined potential.

20. A current drive circuit as set forth in claim 1, wherein an initial value setting element for setting the data to an initial value is connected between said data line and a predetermined potential.

21. A current drive circuit as set forth in claim 7, wherein said drive use insulating gate type field effect transistor is a P-channel type.

22. A current drive circuit for supplying a drive current to a driven object, including:

at least one control line,

a signal line to which a signal current having a current level in accordance with information is supplied,

a conversion use insulating gate type field effect transistor with a source connected to a reference potential,

a fetch use insulating gate type field effect transistor connected between a drain of said conversion use insulating gate type field effect transistor and said signal line and having a gate connected to a said control line,

a drive use insulating gate type field effect transistor connected between the reference potential and said driven object,

a capacitor having a first electrode connected in common to a gate of said conversion use insulating gate type field effect transistor and a gate of said drive use insulating gate type field effect transistor and having a second electrode connected to the reference potential, and

a switch use insulating gate type field effect transistor connected between a gate and drain of said conversion use insulating gate type field effect transistor and having a gate connected to said control line.

23. A current drive circuit for supplying a drive current to a driven object, including:

at least one control line,

a signal line to which a signal current having a current level in accordance with information is supplied,

a conversion use insulating gate type field effect transistor with a source connected to a reference potential,

a fetch use insulating gate type field effect transistor connected between a drain of said conversion use insulating gate type field effect transistor and said signal line and having a gate connected to said control line,

a drive use insulating gate type field effect transistor connected between the reference potential and said driven object,

a capacitor having a first electrode connected to a gate of said drive use insulating gate type field effect transistor and having a second electrode connected to a reference potential, and

a switch use insulating gate type field effect transistor connected between a gate of said conversion use insulating gate type field effect transistor and a connecting point of a gate of said drive use insulating gate type field effect transistor and a first electrode of said capacitor and having a gate connected to said control line.

24. A current drive circuit as set forth in claim 23, wherein a control terminal of said fetch use insulating gate type field effect transistor and a

control terminal of said switch use insulating gate type field effect transistor are connected to different control lines.

25. A current drive circuit as set forth in claim 23, wherein a size of said conversion use transistor is set larger than a size of said drive use transistor.

26. A display device, comprising:

a scanning line,

a data line to which a signal in accordance with brightness information is supplied, and

a pixel comprising a display element formed at an intersecting portion of said data line and said scanning line,

said pixel comprising

a receiving part for fetching the signal supplied to the data line when the scanning line is selected,

a converting and holding part for converting and holding the fetched signal, and

a drive part for converting the held signal and supplying it to said display element.

27. A display device as set forth in claim 26, wherein said fetched signal is a current, the signal held at said converting and holding part is a voltage, and the signal supplied to said display element is a current.

28. A display device as set forth in claim 26, wherein said converting and holding part comprises a first transistor provided with a control terminal and a capacitor connected to said control terminal.

29. A display device as set forth in claim 28, wherein said converting and holding part comprises a second transistor connected between the first terminal of said first transistor and said control terminal.

30. A display device as set forth in claim 29, wherein said second transistor becomes conductive in state when said signal supplied to the data line is fetched by said receiving part and becomes nonconductive in state after the signal is supplied to said converting and holding part.

31. A display device as set forth in claim 29, wherein

said receiving part comprises a third transistor having a first terminal connected to the first terminal of the first transistor and a second terminal connected to said data line and

the control terminal of said second transistor and the control terminal of said third transistor are connected to different scanning lines.

32. A display device as set forth in claim 26, wherein said converting and holding part and said drive

part are the same transistor.

33. A display device as set forth in claim 28, wherein said drive part comprises a third transistor having a control terminal connected to the control terminal of said first transistor.

34. A display device as set forth in claim 29, wherein said drive part comprises a third transistor having a control terminal connected to the control terminal of said first transistor and wherein said first, second, and third transistors configure a current mirror circuit.

35. A display device as set forth in claim 28, wherein said drive part is said first transistor.

36. A display device as set forth in claim 35, further comprising a fourth transistor between said first transistor and said display element.

37. A display device as set forth in claim 35, wherein said display element is connected to the first terminal of said first transistor and further comprising a fourth transistor connected to the second terminal of the first transistor.

38. A display device as set forth in claim 26, wherein said drive part and said converting and holding part are configured by a plurality of transistors.

39. A display device as set forth in claim 26,

wherein said converting and holding part comprises a plurality of transistors provided with control terminals and a plurality of capacitors connected to the control terminals.

40. A display device as set forth in claim 33, wherein said display element is connected to the first terminal of said third transistor and a constant voltage source is connected to the second terminal of said third transistor.

41. A display device as set forth in claim 34, wherein the control terminal of said second transistor is connected to said capacitor.

42. A display device as set forth in claim 37, wherein the other end of the capacitor is connected to the second terminal of said first transistor.

43. A display device as set forth in claim 26, wherein said display element has at least one transparent electrode and has a layer including an organic substance sandwiched between said electrodes.

44. A display device as set forth in claim 26, wherein a leak element is connected between said data line and a predetermined potential.

45. A display device as set forth in claim 26, wherein an initial value setting element for setting said data to an initial value before said scanning line is

selected is connected between said data line and a predetermined potential.

46. A display device comprising:

a scanning line,

a data line to which a current signal in accordance with brightness information is supplied, and

a pixel comprising an organic layer formed at an intersecting portion of said data line and said scanning line,

said pixel comprising

a receiving part for fetching the current signal supplied to the data line when the scanning line is selected,

a converting and holding part for converting the fetched current signal to a voltage and holding the same, and

a drive part for converting the held voltage signal and supplying a current to said display element.

47. A display device as set forth in claim 46, wherein said brightness information is a voltage and wherein the voltage is converted to a current and supplied to the data line.

48. A display device as set forth in claim 46, wherein said converting and holding part comprises a

first transistor provided with a control terminal and a capacitor connected to said control terminal.

49. A display device as set forth in claim 48, wherein said converting and holding part comprises a second transistor connected between the first terminal of said first transistor and said control terminal.

50. A display device as set forth in claim 49, wherein said second transistor becomes conductive in state when said signal supplied to the data line is fetched by said receiving part and becomes nonconductive in state after the signal is supplied to said converting and holding part.

51. A display device as set forth in claim 49, wherein

said receiving part comprises a third transistor having a first terminal connected to the first terminal of said first transistor and a second terminal connected to said data line and

the control terminal of said second transistor and the control terminal of said third transistor are connected to different scanning lines.

52. A display device as set forth in claim 46, wherein said converting and holding part and said drive part are the same transistor.

53. A display device as set forth in claim 48,

wherein said drive part comprises a third transistor having a control terminal connected to the control terminal of said first transistor.

54. A display device as set forth in claim 49, wherein said drive part comprises a third transistor having a control terminal connected to the control terminal of said first transistor and wherein said first, second, and third transistors configure a current mirror circuit.

55. A display device as set forth in claim 48, wherein said drive part is said first transistor.

56. A display device as set forth in claim 55, further comprising a fourth transistor between said first transistor and said display element.

57. A display device as set forth in claim 55, wherein a display element is connected to the first terminal of said first transistor and further comprising a fourth transistor connected to the second terminal of the first transistor.

58. A display device as set forth in claim 46, wherein said drive part and said converting and holding part are configured by a plurality of transistors.

59. A display device as set forth in claim 46, wherein said converting and holding part comprises a plurality of transistors provided with control terminals

and a plurality of capacitors connected to the control terminals.

60. A display device as set forth in claim 61, wherein said display element is connected to the first terminal of said third transistor and a constant voltage source is connected to the second terminal of said third transistor.

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61. A display device as set forth in claim 54, wherein the control terminal of said second transistor is connected to said capacitor.

62. A display device as set forth in claim 57, wherein the other end of the capacitor is connected to the second terminal of said first transistor.

63. A display device as set forth in claim 46, wherein said display element has at least one transparent electrode and has a layer including an organic substance sandwiched between said electrodes.

64. A display device as set forth in claim 46, wherein a leak element is connected between said data line and a predetermined potential.

65. A display device as set forth in claim 46, wherein an initial value setting element for setting said data to an initial value before said scanning line is selected is connected between said data line and a predetermined potential.

66. A display device comprising

a scanning line drive circuit for successively selecting scanning lines,

a data line drive circuit including a current source for generating a signal current having a current level in accordance with brightness information and successively supplying the same to data lines, and

a plurality of pixels arranged at intersecting portions of the scanning lines and the data lines and including current driven type light emitting elements emitting light by receiving the supply of the drive current, wherein

each pixel comprises

a receiving part for fetching the signal current from a data line when the scanning line is selected,

a converting part for converting a current level of the fetched signal current to a voltage level and holding the same, and

a drive part for passing a drive current having a current level in accordance with the held voltage level through the light emitting element.

67. A display device as set forth in claim 66, wherein the converting part includes a conversion use insulating gate type field effect transistor provided

with a gate, a source, a drain, and a channel and a capacitor connected to the gate.

68. A display device as set forth in claim 67, wherein

the converting part includes a switch use insulating gate type field effect transistor inserted between the drain and the gate of the conversion use insulating gate type field effect transistor,

the switch use insulating gate type field effect transistor becomes conductive when converting the current level of the signal current to the voltage level and electrically connects the drain and the gate of the conversion use insulating gate type field effect transistor to create the voltage level with the source as the reference at the gate, and

the switch use insulating gate type field effect transistor is cut off and separates the gate of the conversion use insulating gate type field effect transistor and the capacitor connected to this from the drain when the capacitor holds the voltage level.

69. A display device as set forth in claim 66, wherein:

the receiving part includes a fetch use insulating gate type field effect transistor inserted between the drain of the conversion use insulating gate

type field effect transistor and the data line and

the converting part includes a switch use insulating gate type field effect transistor inserted between the drain and the gate of the conversion use insulating gate type field effect transistor,.

70. A display device as set forth in claim 69, wherein the gate of the fetch use insulating gate type field effect transistor and the gate of the switch use insulating gate type field effect transistor are connected to different scanning lines.

71. A display device as set forth in claim 70, wherein

the switch use insulating gate type field effect transistor becomes conductive when converting the current level of the signal current to the voltage level and electrically connects the drain and the gate of the conversion use insulating gate type field effect transistor to create the voltage level with the source as the reference at the gate,

the switch use insulating gate type field effect transistor is cut off and separates the gate of the conversion use insulating gate type field effect transistor and the capacitor connected to this from the drain when the capacitor holds the voltage level, and

the switch use insulating gate type field

effect transistor becomes unselected and is cut off before the fetch use insulating gate type field effect transistor becomes nonconductive.

72. A display device as set forth in claim 71, wherein the switch use insulating gate type field effect transistor is made conductive after a predetermined time within one frame period after the switch use insulating gate type field effect transistor and the fetch use insulating gate type field effect transistor become nonconductive to extinguish in units of scanning lines.

73. A display device as set forth in claim 71, wherein a scanning line to which the switch use insulating gate type field effect transistor is connected is provided independently for each of the three primary colors.

74. A display device as set forth in claim 69, wherein a conductivity type of said switch use insulating gate type field effect transistor and a conductivity type of said fetch use insulating gate type transistor are different.

75. A display device as set forth in claim 67, wherein

said drive part includes a drive use insulating gate type field effect transistor provided with a gate, a drain, a source, and a channel, and

the drive use insulating gate type field effect transistor receives the voltage level held at the capacitor at its gate and passes a drive current having a current level in accordance with that through the light emitting element via the channel.

76. A display device as set forth in claim 75, wherein the gate of the conversion use insulating gate type field effect transistor and the gate of the drive use insulating gate type field effect transistor are directly connected to configure a current mirror circuit and wherein the current level of the signal current and the current level of the drive current are proportional.

77. A display device as set forth in claim 75, wherein the drive use insulating gate type field effect transistor is formed in the vicinity of the corresponding conversion use insulating gate type field effect transistor inside the pixel and has an equivalent threshold voltage to that of the conversion use insulating gate type field effect transistor.

78. A display device as set forth in claim 77, wherein the size of the conversion use insulating gate type field effect transistor is set larger than the size of the drive use insulating gate type field effect transistor.

79. A display device as set forth in claim 77,

wherein the drive use insulating gate type field effect transistor operates in the saturated region and passes a drive current in accordance with a difference between the level of the voltage applied to the gate thereof and the threshold voltage through the light emitting element.

80. A display device as set forth in claim 77, wherein the drive use insulating gate type field effect transistors operates in the linear region.

81. A display device as set forth in claim 78, wherein the drive use insulating gate type field effect transistors operates in the linear region.

82. A display device as set forth in claim 67, wherein

the drive part shares the conversion use insulating gate type field effect transistor together with the converting part in a time division manner, and

the drive part separates the conversion use insulating gate type field effect transistor from the receiving part and uses the same for driving after the conversion of the signal current is completed and passes the drive current to the light emitting element through the channel in a state where the held voltage level is applied to the gate of the conversion use insulating gate type field effect transistor.

83. A display device as set forth in claim 82,

wherein the drive part comprises a controlling means for cutting off an unnecessary current flowing to the light emitting element via the conversion use insulating gate type field effect transistor at times other than the time of drive.

84. A display device as set forth in claim 83, wherein the controlling means controls the voltage between terminals of two-terminal type light emitting element having a rectification function to cut off the unnecessary current.

85. A display device as set forth in claim 83, wherein

the controlling means comprises a control use insulating gate type field effect transistor inserted between the conversion use insulating gate type field effect transistor and the light emitting element, and

the control use insulating gate type field effect transistor becomes nonconductive in state and separates the conversion use insulating gate type field effect transistor and the light emitting element when the light emitting element is not driven and switches to the conductive state when the light emitting element is driven.

86. A display device as set forth in claim 83, wherein the controlling means controls a ratio between a

time for cutting off the drive current when the light emitting element is not to be driven and placing the light emitting element in the non-light emitting state and a time of passing the drive current when the light emitting element is to be driven and placing the light emitting element in the light emitting and thereby to enable the control of the brightness of the pixel.

87. A display device as set forth in claim 82, wherein the drive part comprises a potential fixing means for fixing the potential of the drain with reference to the source of the conversion use insulating gate type field effect transistor in order to stabilize the current level of the drive current flowing to the light emitting element through the conversion use insulating gate type field effect transistor.

88. A display device as set forth in claim 66, wherein

the receiving part, the converting part, and the drive part configure a current circuit combining a plurality of insulating gate type field effect transistors, and

one or two or more insulating gate type field effect transistors have a double gate structure for suppressing current leakage in the current circuit.

89. A display device as set forth in claim 66,

wherein

the drive part includes an insulating gate type field effect transistor provided with a gate, drain, and a source and passes the drive current passing between the drain and the source to the light emitting element in accordance with the level of the voltage applied to the gate, and

the light emitting element is a two terminal type having an anode and a cathode, where the cathode is connected to the drain.

90. A display device as set forth in claim 66, wherein

the drive part includes an insulating gate type field effect transistor provided with a gate, a drain, and a source and passes a drive current passing between the drain and the source to the light emitting element in accordance with the level of the voltage applied to the gate, and

the light emitting element is a two terminal type having an anode and a cathode, where the anode is connected to the source.

91. A display device as set forth in claim 66, further including an adjusting means for downwardly adjusting the voltage level held by the converting part and supplying the same to the drive part to tighten the

black level of the brightness of each pixel.

92. A display device as set forth in claim 66, wherein a leak element is connected between said data line and a predetermined potential.

93. A display device as set forth in claim 66, wherein an initial value setting element for setting said data to an initial value before said scanning line is selected is connected between said data line and a predetermined potential.

94. A display device as set forth in claim 93, wherein

the drive part includes an insulating gate type field effect transistor having a gate, a drain, and a source, and

the adjusting means downwardly adjusts the level of the voltage applied to the gate by raising the bottom of the voltage between the gate and the source of the insulating gate type field effect transistor.

95. A display device as set forth in claim 93, wherein

the drive part includes an insulating gate type field effect transistor having a gate, a drain, and a source,

the converting part is provided with a capacitor connected to the gate of the thin film

transistor and holding the voltage level, and

the adjusting means comprises an additional capacitor connected to that capacitor and downwardly adjusts the level of the voltage to be applied to the gate of the insulating gate type field effect transistor held at that capacitor.

96. A display device as set forth in claim 93, wherein

the drive part includes an insulating gate type field effect transistor having a gate, a drain, and a source,

the converting part is provided with a capacitor connected to the gate of the insulating gate type field effect transistor on its one end and holding the voltage level, and

the adjusting means adjusts the potential of the other end of the capacitor when holding the voltage level converted by the converting part at that capacitor to downwardly adjust the level of the voltage to be applied to the gate of the insulating gate type field effect transistor.

97. A display device as set forth in claim 66, wherein the light emitting element comprises an organic electroluminescence element.

98. A display device as set forth in claim 75,

wherein the drive use insulating gate type field effect transistor comprises a P-channel type.

99. A display device comprising

a scanning line drive circuit for successively selecting scanning lines,

a data line drive circuit including a current source for generating a signal current having a current level in accordance with brightness information and successively supplying the same to data lines, and

a plurality of pixels arranged at intersecting portions of the scanning lines and the data lines and including current driven type light emitting elements emitting light by receiving the supply of the drive current, wherein

each pixel comprises

a conversion use insulating gate type field effect transistor having a source connected to a reference potential,

a fetch use insulating gate type field effect transistor inserted between the drain of the conversion use insulating gate type field effect transistor and the data line and having a gate connected to a scanning line,

a drive use insulating gate type field effect transistor connected between a reference potential

and a light emitting element,

a capacitor having a first electrode connected in common to a gate of the conversion use insulating gate type field effect transistor and a gate of the drive use insulating gate type field effect transistor and having a second electrode connected to a reference potential, and

a switch use insulating gate type field effect transistor connected between a gate and drain of said conversion use insulating gate type field effect transistor and having a gate connected to a scanning line.

100. A display device comprising

a scanning line drive circuit for successively selecting scanning lines,

a data line drive circuit including a current source for generating a signal current having a current level in accordance with brightness information and successively supplying the same to data lines, and

a plurality of pixels arranged at intersecting portions of the scanning lines and the data lines and including current driven type light emitting elements emitting light by receiving the supply of the drive current, wherein

each pixel comprises

a conversion use insulating gate type field effect transistor having a source connected to a reference potential,

a fetch use insulating gate type field effect transistor connected between the drain of the conversion use insulating gate type field effect transistor and the data line and having a gate connected to a scanning line,

a drive use insulating gate type field effect transistor connected between a reference potential and a light emitting element,

a capacitor having a first electrode connected to a gate of the drive use insulating gate type field effect transistor and having a second electrode connected to a reference potential, and

a switch use insulating gate type field effect transistor connected between a gate of said conversion use insulating gate type field effect transistor and a connecting point between a gate of said drive use insulating gate type field effect transistor and a first electrode of said capacitor and having a gate connected to a scanning line.

101. A display device as set forth in claim 100, wherein the control terminal of the fetch use insulating gate type field effect transistor and the control

terminal of the switch use insulating gate type field effect transistor are connected to different scanning lines.

102. A display device as set forth in claim 100, wherein the size of the conversion use insulating gate type field effect transistor is set larger than the size of the drive use insulating gate type field effect transistor.

103. A display device as set forth in claim 101, wherein the switch use insulating gate type field effect transistor is made conductive after a predetermined time within one frame period after the switch use insulating gate type field effect transistor and the fetch use insulating gate type field effect transistor become nonconductive to extinguish in units of scanning lines.

104. A pixel circuit for driving a current-driven type light emitting element arranged at an intersecting portion of a data line supplying a signal current of a current level in accordance with brightness information and a scanning line supplying a selection pulse and emitting light by the drive current, comprising

a receiving part for fetching the signal current from said data line in response to a selection pulse from said scanning line,

a converting part for converting a current

level of the fetched signal current to a voltage level and holding the same, and

a drive part for passing a drive current having a current level in accordance with the held voltage level through the light emitting element.

105. A pixel circuit as set forth in claim 104, wherein the converting part includes a conversion use insulating gate type field effect transistor provided with a gate, a source, a drain, and a channel and a capacitor connected to the gate.

106. A pixel circuit as set forth in claim 105, wherein

the converting part includes a switch use insulating gate type field effect transistor inserted between the drain and the gate of the conversion use insulating gate type field effect transistor,

the switch use insulating gate type field effect transistor becomes conductive when converting the current level of the signal current to the voltage level and electrically connects the drain and the gate of the conversion use insulating gate type field effect transistor to create the voltage level with the source as the reference at the gate, and

the switch use insulating gate type field effect transistor is cut off and separates the gate of

the conversion use insulating gate type field effect transistor and the capacitor connected to this from the drain when the capacitor holds the voltage level.

107. A pixel circuit as set forth in claim 104, wherein:

the receiving part includes a fetch use insulating gate type field effect transistor inserted between the drain of the conversion use insulating gate type field effect transistor and the data line and

the converting part includes a switch use insulating gate type field effect transistor inserted between the drain and the gate of the conversion use insulating gate type field effect transistor,.

108. A pixel circuit as set forth in claim 107, wherein the gate of the fetch use insulating gate type field effect transistor and the gate of the switch use insulating gate type field effect transistor are connected to different scanning lines.

109. A pixel circuit as set forth in claim 108, wherein

the switch use insulating gate type field effect transistor becomes conductive when converting the current level of the signal current to the voltage level and electrically connects the drain and the gate of the conversion use insulating gate type field effect

transistor to create the voltage level with the source as the reference at the gate,

the switch use insulating gate type field effect transistor is cut off and separates the gate of the conversion use insulating gate type field effect transistor and the capacitor connected to this from the drain when the capacitor holds the voltage level, and

the switch use insulating gate type field effect transistor becomes unselected and is cut off before the fetch use insulating gate type field effect transistor becomes nonconductive.

110. A pixel circuit as set forth in claim 109, wherein the switch use insulating gate type field effect transistor is made conductive after a predetermined time within one frame period after the switch use insulating gate type field effect transistor and the fetch use insulating gate type field effect transistor become nonconductive to extinguish in units of scanning lines.

111. A pixel circuit as set forth in claim 105, wherein a scanning line to which the switch use insulating gate type field effect transistor is connected is provided independently for each of the three primary colors.

112. A pixel circuit as set forth in claim 107, wherein a conductivity type of said switch use insulating

gate type field effect transistor and a conductivity type of said fetch use insulating gate type transistor are different.

113. A pixel circuit as set forth in claim 105, wherein

said drive part includes a drive use insulating gate type field effect transistor provided with a gate, a drain, a source, and a channel, and

the drive use insulating gate type field effect transistor receives the voltage level held at the capacitor at its gate and passes a drive current having a current level in accordance with that through the light emitting element via the channel.

114. A pixel circuit as set forth in claim 113, wherein the gate of the conversion use insulating gate type field effect transistor and the gate of the drive use insulating gate type field effect transistor are directly connected to configure a current mirror circuit and wherein the current level of the signal current and the current level of the drive current are proportional.

115. A pixel circuit as set forth in claim 113, wherein the drive use insulating gate type field effect transistor is formed in the vicinity of the corresponding conversion use insulating gate type field effect transistor inside the pixel and has an equivalent

threshold voltage to that of the conversion use insulating gate type field effect transistor.

116. A pixel circuit as set forth in claim 115, wherein the size of the conversion use insulating gate type field effect transistor is set larger than the size of the drive use insulating gate type field effect transistor.

117. A pixel circuit as set forth in claim 115, wherein the drive use insulating gate type field effect transistor operates in the saturated region and passes a drive current in accordance with a difference between the level of the voltage applied to the gate thereof and the threshold voltage through the light emitting element.

118. A pixel circuit as set forth in claim 115, wherein the drive use insulating gate type field effect transistors operates in the linear region.

119. A pixel circuit as set forth in claim 116, wherein the drive use insulating gate type field effect transistors operates in the linear region.

120. A pixel circuit as set forth in claim 121, wherein

the drive part shares the conversion use insulating gate type field effect transistor together with the converting part in a time division manner, and

the drive part separates the conversion use

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insulating gate type field effect transistor from the receiving part and uses the same for driving after the conversion of the signal current is completed and passes the drive current to the light emitting element through the channel in a state where the held voltage level is applied to the gate of the conversion use insulating gate type field effect transistor.

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121. A pixel circuit as set forth in claim 120, wherein the drive part comprises a controlling means for cutting off an unnecessary current flowing to the light emitting element via the conversion use insulating gate type field effect transistor at times other than the time of drive.

122. A pixel circuit as set forth in claim 121, wherein the controlling means controls the voltage between terminals of two-terminal type light emitting element having a rectification function to cut off the unnecessary current.

123. A pixel circuit as set forth in claim 121, wherein

the controlling means comprises a control use insulating gate type field effect transistor inserted between the conversion use insulating gate type field effect transistor and the conversion use insulating gate type field effect transistor and the light emitting element, and

the control use insulating gate type field

effect transistor becomes nonconductive in state and separates the conversion use insulating gate type field effect transistor and the light emitting element when the light emitting element is not driven and switches to the conductive state when the light emitting element is driven.

124. A pixel circuit as set forth in claim 121, wherein the controlling means controls a ratio between a time for cutting off the drive current when the light emitting element is not to be driven and placing the light emitting element in the non-light emitting state and a time of passing the drive current when the light emitting element is to be driven and placing the light emitting element in the light emitting and thereby to enable the control of the brightness of the pixel.

125. A pixel circuit as set forth in claim 120, wherein the drive part comprises a potential fixing means for fixing the potential of the drain with reference to the source of the conversion use insulating gate type field effect transistor in order to stabilize the current level of the drive current flowing to the light emitting element through the conversion use insulating gate type field effect transistor.

126. A pixel circuit as set forth in claim 104, wherein

the receiving part, the converting part, and the drive part configure a current circuit combining a plurality of insulating gate type field effect transistors, and

one or two or more insulating gate type field effect transistors have a double gate structure for suppressing current leakage in the current circuit.

127. A pixel circuit as set forth in claim 104, wherein

the drive part includes an insulating gate type field effect transistor provided with a gate, drain, and a source and passes the drive current passing between the drain and the source to the light emitting element in accordance with the level of the voltage applied to the gate, and

the light emitting element is a two terminal type having an anode and a cathode, where the cathode is connected to the drain.

128. A pixel circuit as set forth in claim 104, wherein

the drive part includes an insulating gate type field effect transistor provided with a gate, a drain, and a source and passes a drive current passing between the drain and the source to the light emitting element in accordance with the level of the voltage applied to the

gate, and

the light emitting element is a two terminal type having an anode and a cathode, where the anode is connected to the source.

129. A pixel circuit as set forth in claim 104, further including an adjusting means for downwardly adjusting the voltage level held by the converting part and supplying the same to the drive part to tighten the black level of the brightness of each pixel.

130. A pixel circuit as set forth in claim 104, wherein a leak element is connected between said data line and a predetermined potential.

131. A pixel circuit as set forth in claim 104, wherein an initial value setting element for setting said data to an initial value connected between said data line and a predetermined potential.

132. A pixel circuit as set forth in claim 129, wherein

the drive part includes an insulating gate type field effect transistor having a gate, a drain, and a source, and

the adjusting means downwardly adjusts the level of the voltage applied to the gate by raising the bottom of the voltage between the gate and the source of the insulating gate type field effect transistor.

133. A pixel circuit as set forth in claim 129, wherein

the drive part includes an insulating gate type field effect transistor having a gate, a drain, and a source,

the converting part is provided with a capacitor connected to the gate of the thin film transistor and holding the voltage level, and

the adjusting means comprises an additional capacitor connected to that capacitor and downwardly adjusts the level of the voltage to be applied to the gate of the insulating gate type field effect transistor held at that capacitor.

134. A pixel circuit as set forth in claim 129, wherein

the drive part includes an insulating gate type field effect transistor having a gate, a drain, and a source,

the converting part is provided with a capacitor connected to the gate of the insulating gate type field effect transistor on its one end and holding the voltage level, and

the adjusting means adjusts the potential of the other end of the capacitor when holding the voltage level converted by the converting part at that capacitor

to downwardly adjust the level of the voltage to be applied to the gate of the insulating gate type field effect transistor.

135. A pixel circuit as set forth in claim 104, wherein the light emitting element comprises an organic electroluminescence element.

136. A pixel circuit as set forth in claim 113, wherein the drive use insulating gate type field effect transistor comprises a P-channel type.

137. A pixel circuit for driving a current-driven type light emitting element arranged at an intersecting portion of a data line supplying a signal current of a current level in accordance with brightness information and a scanning line supplying a selection pulse and emitting light by the drive current, comprising

a conversion use insulating gate type field effect transistor having a source connected to a reference potential,

a fetch use insulating gate type field effect transistor inserted between the drain of the conversion use insulating gate type field effect transistor and the data line and having a gate connected to a scanning line,

a drive use insulating gate type field effect transistor connected between a reference potential and a light emitting element,

a capacitor having a first electrode connected in common to a gate of the conversion use insulating gate type field effect transistor and a gate of the drive use insulating gate type field effect transistor and having a second electrode connected to a reference potential, and

a switch use insulating gate type field effect transistor connected between a gate and drain of said conversion use insulating gate type field effect transistor and having a gate connected to a scanning line.

138. A pixel circuit for driving a current-driven type light emitting element arranged at an intersecting portion of a data line supplying a signal current of a current level in accordance with brightness information and a scanning line supplying a selection pulse and emitting light by the drive current, comprising

a conversion use insulating gate type field effect transistor having a source connected to a reference potential,

a fetch use insulating gate type field effect transistor connected between the drain of the conversion use insulating gate type field effect transistor and the data line and having a gate connected to a scanning line,

a drive use insulating gate type field effect transistor connected between a reference potential and a

light emitting element,

a capacitor having a first electrode connected to a gate of the drive use insulating gate type field effect transistor and having a second electrode connected to a reference potential, and

a switch use insulating gate type field effect transistor connected between a gate of said conversion use insulating gate type field effect transistor and a connecting point between a gate of said drive use insulating gate type field effect transistor and a first electrode of said capacitor and having a gate connected to a scanning line.

139. A pixel circuit as set forth in claim 138, wherein the control terminal of the fetch use insulating gate type field effect transistor and the control terminal of the switch use insulating gate type field effect transistor are connected to different scanning lines.

140. A pixel circuit as set forth in claim 138, wherein the size of the conversion use insulating gate type field effect transistor is set larger than the size of the drive use insulating gate type field effect transistor.

141. A pixel circuit as set forth in claim 139, wherein the switch use insulating gate type field effect

transistor is made conductive after a predetermined time within one frame period after the switch use insulating gate type field effect transistor and the fetch use insulating gate type field effect transistor become nonconductive to extinguish in units of scanning lines.

142. A method of driving a light emitting element for driving a current-driven type light emitting element arranged at an intersecting portion of a data line supplying a signal current of a current level in accordance with brightness information and a scanning line supplying a selection pulse and emitting light by the drive current, comprising

a receiving routine for fetching the signal current from said data line in response to a selection pulse from said scanning line,

a converting routine for converting a current level of the fetched signal current to a voltage level and holding the same, and

a drive routine for passing a drive current having a current level in accordance with the held voltage level through the light emitting element.

143. A method of driving a light emitting element as set forth in claim 142, wherein

the converting routine includes a routine using a conversion use insulating gate type field effect

drain when the capacitor holds the voltage level.

145. A method of driving a light emitting element as set forth in claim 143, wherein:

said drive routines includes a routine using a drive use insulating gate type field effect transistor provided with a gate, a drain, a source, and a channel, and

in the routine, the drive use insulating gate type field effect transistor receives the voltage level held at the capacitor at its gate and passes a drive current having a current level in accordance with that through the light emitting element via the channel.

146. A method of driving a light emitting element as set forth in claim 145, wherein the gate of the conversion use insulating gate type field effect transistor and the gate of the drive use insulating gate type field effect transistor are directly connected to configure a current mirror circuit and wherein the current level of the signal current and the current level of the drive current are proportional.

147. A method of driving a light emitting element as set forth in claim 145, wherein the drive use insulating gate type field effect transistor is formed in the vicinity of the corresponding conversion use insulating gate type field effect transistor inside the

transistor provided with a gate, a source, a drain, and a channel and a capacitor connected to the gate,

in the routine, the conversion use insulating gate type field effect transistor creates the voltage level converted by passing the fetched signal current though the channel in the receiving routine at the gate, and the capacitor holds voltage level created at the gate.

144. A method of driving a light emitting element as set forth in claim 143, wherein

the converting routine includes a routine using a switch use insulating gate type field effect transistor inserted between the drain and the gate of the conversion use insulating gate type field effect transistor,

in the routine, the switch use insulating gate type field effect transistor becomes conductive when converting the current level of the signal current to the voltage level and electrically connects the drain and the gate of the conversion use insulating gate type field effect transistor to create the voltage level with the source as the reference at the gate, and

the switch use insulating gate type field effect transistor is cut off and separates the gate of the conversion use insulating gate type field effect transistor and the capacitor connected to this from the

pixel and has an equivalent threshold voltage to that of the conversion use insulating gate type field effect transistor.

148. A method of driving a light emitting element as set forth in claim 147, wherein the drive use insulating gate type field effect transistor operates in the saturated region and passes a drive current in accordance with a difference between the level of the voltage applied to the gate thereof and the threshold voltage through the light emitting element.

149. A method of driving a light emitting element as set forth in claim 143, wherein

the drive routine part shares the conversion use insulating gate type field effect transistor together with the converting part in a time division manner, and

the drive routine separates the conversion use insulating gate type field effect transistor from the receiving part and uses the same for driving after the conversion of the signal current is completed and passes the drive current to the light emitting element through the channel in a state where the held voltage level is applied to the gate of the conversion use insulating gate type field effect transistor.

150. A method of driving a light emitting element as set forth in claim 149, wherein the drive routine

includes a control routine for cutting off an unnecessary current flowing to the light emitting element via the conversion use insulating gate type field effect transistor at times other than the time of drive.

151. A method of driving a light emitting element as set forth in claim 150, wherein the control routine controls the voltage between terminals of two-terminal type light emitting element having a rectification function to cut off the unnecessary current.

152. A method of driving a light emitting element as set forth in claim 150, wherein

the control routines comprises a routine using a control use insulating gate type field effect transistor inserted between the conversion use insulating gate type field effect transistor and the light emitting element, and

in the routine, the control use insulating gate type field effect transistor becomes nonconductive in state and separates the conversion use insulating gate type field effect transistor and the light emitting element when the light emitting element is not driven and switches to the conductive state when the light emitting element is driven.

153. A method of driving a light emitting element as set forth in claim 150, wherein the control routine

controls a ratio between a time for cutting off the drive current when the light emitting element is not to be driven and placing the light emitting element in the non-light emitting state and a time of passing the drive current when the light emitting element is to be driven and placing the light emitting element in the light emitting and thereby to enable the control of the brightness of the pixel.

154. A method of driving a light emitting element as set forth in claim 150, wherein the drive routine includes a potential fixing routine for fixing the potential of the drain with reference to the source of the conversion use insulating gate type field effect transistor in order to stabilize the current level of the drive current flowing to the light emitting element through the conversion use insulating gate type field effect transistor.

155. A method of driving a light emitting element as set forth in claim 143, wherein

the receiving routine, the converting routine, and the drive routine are executed on a current circuit combining a plurality of insulating gate type field effect transistors, and

one or two or more insulating gate type field effect transistors have a double gate structure for

suppressing current leakage in the current circuit.

156. A method of driving a light emitting element as set forth in claim 142, wherein

the drive routine is performed using an insulating gate type field effect transistor provided with a gate, drain, and a source and passes the drive current passing between the drain and the source to the light emitting element in accordance with the level of the voltage applied to the gate, and

the light emitting element is a two terminal type having an anode and a cathode, where the cathode is connected to the drain.

157. A method of driving a light emitting element as set forth in claim 142, wherein

the drive routine is performed using an insulating gate type field effect transistor provided with a gate, a drain, and a source and passes a drive current passing between the drain and the source to the light emitting element in accordance with the level of the voltage applied to the gate, and

the light emitting element is a two terminal type having an anode and a cathode, where the anode is connected to the source.

158. A method of driving a light emitting element as set forth in claim 142, further including an adjusting

routine for downwardly adjusting the voltage level held by the converting routine and supplying the same to the drive part to tighten the black level of the brightness of each pixel.

159. A method of driving a light emitting element as set forth in claim 158, wherein

the drive routine includes uses an insulating gate type field effect transistor having a gate, a drain, and a source, and

the adjusting routine downwardly adjusts the level of the voltage applied to the gate by raising the bottom of the voltage between the gate and the source of the insulating gate type field effect transistor.

160. A method of driving a light emitting element as set forth in claim 158, wherein

the drive routine uses an insulating gate type field effect transistor having a gate, a drain, and a source,

the converting routine uses a capacitor connected to the gate of the thin film transistor and holding the voltage level, and

the adjusting routine uses an additional capacitor connected to that capacitor and downwardly adjusts the level of the voltage to be applied to the gate of the insulating gate type field effect transistor

held at that capacitor.

161. A method of driving a light emitting element as set forth in claim 158, wherein

the drive routine uses an insulating gate type field effect transistor having a gate, a drain, and a source,

the converting routine uses a capacitor connected to the gate of the insulating gate type field effect transistor on its one end and holding the voltage level, and

the adjusting means routine adjusts the potential of the other end of the capacitor when holding the voltage level converted by the converting routine at that capacitor to downwardly adjust the level of the voltage to be applied to the gate of the insulating gate type field effect transistor.

162. A method of driving a light emitting element as set forth in claim 142, wherein the light emitting element comprises an organic electroluminescence element.

163. A display device including:

scanning lines for selecting pixels and data lines giving brightness information for driving the pixels arranged in a matrix,

each pixel including a light emitting element changing in brightness by an amount of current supplied,

a writing means controlled by a scanning line and writing in the pixel brightness information given from the data line, and a drive means for controlling the amount of current supplied to said light emitting element in accordance with the written brightness information,

the brightness information being written in each pixel by applying an electric signal in accordance with the brightness information to the data line in the state with the scanning line selected,

the brightness information written in each pixel being held in each pixel even after the scanning line is not selected and the light emitting element of each pixel able to remain lighted by a brightness in accordance with the held brightness information, further comprising

an adjusting means for downwardly adjusting the brightness information written by said writing means and supplying the same to said drive means to tighten the blackness level of each pixel.

164. A pixel circuit for driving a pixel having a light emitting element arranged at an intersecting portion of a data line supplying brightness information and a scanning line supplying a selection pulse and emitting light in accordance with said brightness information, including

a writing means controlled by a scanning line and writing in the pixel brightness information given from the data line and a drive means for controlling the amount of current supplied to said light emitting element in accordance with the written brightness information,

the brightness information being written in each pixel by applying an electric signal in accordance with the brightness information to the data line in the state with the scanning line selected,

the brightness information written in each pixel being held in each pixel even after the scanning line is not selected and the light emitting element of each pixel able to remain lighted by a brightness in accordance with the held brightness information, further comprising

an adjusting means for downwardly adjusting the brightness information written by said writing means and supplying the same to said drive means to tighten the blackness level of each pixel.

165. A method of driving a display device including scanning lines for selecting pixels and data lines giving brightness information for driving the pixels arranged in a matrix, each pixel including a light emitting element changing in brightness by an amount of current supplied, comprising:

a writing routine controlled by a scanning line and writing in the pixel brightness information given from the data line and a drive routine for controlling the amount of current supplied to said light emitting element in accordance with the written brightness information,

the brightness information being written in each pixel by applying an electric signal in accordance with the brightness information to the data line in the state with the scanning line selected,

the brightness information written in each pixel being held in each pixel even after the scanning line is not selected and the light emitting element of each pixel able to remain lighted by a brightness in accordance with the held brightness information, further comprising

an adjusting routine for downwardly adjusting the brightness information written by said writing routine and supplying the same to said drive routine to tighten the blackness level of each pixel.